

Amendments to the Claims:

1. **(Currently amended)** A reciprocating compressor comprising:

(a) a motor unit;

(b) a compressing unit disposed over said motor unit and including:

(b-1) a compression chamber;

(b-2) a piston disposed for reciprocation in said compression chamber; and

(b-3) a crankshaft rotatable about a rotation axis and configured to convert rotating action of said motor unit into reciprocating action of said piston; and

(c) an enclosed container accommodating said motor unit and said compressing unit and having a lubricant oil pooling portion configured to pool lubricant oil, wherein said crankshaft includes:

(b-3-1) a centrifugal pump disposed at a lower section of said crankshaft and opening into the lubricant oil pooling portion of said container; and

(b-3-2) a pair of spiral pumps, functionally independent, disposed at a middle section of said crankshaft, fluidically connected with said centrifugal pump, and having leading grooves running in opposite directions to each other,

wherein said spiral pumps respectively have upper ends and lower ends, and said centrifugal pump is fluidically connected with said spiral pumps only at said lower ends thereof via one communicating section,

wherein a pair of vertical holes, functionally independent, are provided at an upper section of said crankshaft, said vertical holes respectively having upper ends and lower ends, said upper ends of said vertical holes opening into said container through an uppermost end surface of said crankshaft, said lower ends of said vertical holes being connected to said spiral pumps to fluidically connect said vertical holes with said spiral pumps, respectively,

wherein said centrifugal pump includes a throttle section provided with a bottom wall having a suction hole, disposed in said lubricant oil pooling portion, for allowing the lubricant oil

pooled in said container to be drawn into said centrifugal pump, said bottom wall being perpendicular to said rotation axis of said crankshaft,

wherein said centrifugal pump further includes a hollow cylinder extending upward from a lower end of said crankshaft, ~~and~~

wherein said suction hole has a diameter smaller than a diameter of said hollow ~~cylinder~~:
cylinder,

wherein said crankshaft comprises an eccentric shaft, and a main-shaft section provided under the eccentric shaft,

wherein said hollow cylinder is inclined with respect to said rotation axis of said crankshaft,

wherein a vent hole is provided at an upper section of said hollow cylinder, and

wherein said vent hole is formed of a first part and a second part, said first part extends upwardly along said rotation axis of said crankshaft from an off-center position with respect to said rotation axis of said crankshaft at an upper section of said hollow cylinder, and said second part extends from an upper end of said first part to an upper opening that opens into said container and is located at an upper end of said main-shaft section.

Claims 2 and 3 (Cancelled)

4. **(Currently amended)** The reciprocating compressor of claim 1, wherein said crankshaft further includes ~~an eccentric shaft, and comprises~~ a sub-shaft section ~~and a, said~~ eccentric shaft being vertically sandwiched by said sub-shaft section and said main-shaft section which vertically sandwich the eccentric shaft,

wherein said compressing unit includes a sub-bearing and a main-bearing, both of which are formed to cross with an axis of said compression chamber at substantially right angles, for supporting said sub-shaft section and said main-shaft section respectively, and a linking section that links said piston to said eccentric shaft.

5. **(Previously Presented)** The reciprocating compressor of claim 4, wherein a pair of helical grooves, functionally independent, are provided on an outer wall of said sub-shaft section, said helical grooves including leading grooves running in opposite directions to each other and fluidically connected with the pair of vertical holes respectively, said helical grooves themselves serving to pump the lubricating oil upwardly.

6. **(Original)** The reciprocating compressor of claim 1, wherein said motor unit is a three-phase induction motor.

7. **(Original)** The reciprocating compressor of claim 1, wherein said motor unit is a single-phase resistant-start induction motor.

8. **(Currently amended)** The reciprocating compressor of claim ~~3~~ 1, wherein said upper opening of said second part of said vent hole opens through an upper surface of said ~~centrifugal pump main-shaft section~~, said upper surface facing upwardly in an axial direction of said crankshaft.

9. **(Previously Presented)** The reciprocating compressor of claim 5, wherein a thrust bearing is provided over said sub-shaft section, and said helical grooves provided on said sub-bearing serve to pump lubricant oil up from said vertical holes, respectively, and supply the lubricant oil to said thrust bearing.

Claims 10-12 **(Canceled)**

13. **(Currently amended)** A reciprocating compressor comprising:
an enclosed container having a lubricant oil pooling portion to allow for pooling of lubricant oil therein;
a motor unit disposed in said container;

a compressing unit disposed in said container over said motor unit and being arranged to be driven by said motor unit;

wherein said compressing unit includes a cylinder block, a compression chamber formed in said cylinder block, a piston disposed for reciprocation in said compression chamber, and a crankshaft rotatable about a rotation axis and operably coupled to said piston and said motor unit to cause reciprocation of said piston upon rotating action of said motor unit;

wherein said crankshaft includes a lower, main section coupled with said motor unit, a middle, eccentric section disposed above said main section and coupled to said piston, and an upper, sub-shaft section disposed above said eccentric section;

wherein a lower, main bearing is provided about said main section of said crankshaft to rotatably support said crankshaft at said main section thereof;

wherein an upper, sub bearing is provided about said sub-section of said crankshaft to rotatably support said crankshaft at said sub-shaft section thereof;

wherein said main section of said crankshaft has a fluid suction path formed therein and opening into said lubricant oil pooling portion of said container;

wherein said main section of said crankshaft has a pair of first spiral pump grooves formed in an outer surface thereof, said first spiral pump grooves being fluidically connected to said fluid suction path and being functionally independent of one another;

wherein said eccentric section of said crankshaft has a pair of vertical holes formed therein, said vertical holes respectively having upper ends and lower ends, said upper ends of said vertical holes opening into said container through an uppermost end surface of said crankshaft, said lower ends of said vertical holes being connected to said first spiral pump grooves to fluidically connect said vertical holes with said first spiral pump grooves, respectively, and said vertical holes being functionally independent of one another;

wherein said first spiral pump grooves respectively have upper ends and lower ends, and said fluid suction path is fluidically connected with said first spiral pump grooves only at said lower ends thereof via one communication section;

wherein said sub-shaft section of said crankshaft has a pair of second spiral pump grooves formed in an outer surface thereof, said second spiral pump grooves being functionally independent of one another and operable to pump the lubricant oil upwardly;

wherein said second spiral pump grooves are fluidically connected to said vertical holes, respectively, such that a first one of said vertical holes is arranged to independently feed lubricant oil from a first one of said first spiral pump grooves to a first one of said second spiral pump grooves, and such that a second one of said vertical holes is arranged to independently feed lubricant oil from a second one of said first spiral pump grooves to a second one of said second spiral pump grooves;

wherein said fluid suction path is defined in a throttle section having a bottom wall with a suction hole therein, disposed in said lubricant oil pooling portion, for allowing the lubricant oil pooled in said container to be drawn into said fluid suction path, said bottom wall being perpendicular to said rotation axis of said crankshaft;

wherein said fluid suction path is further defined in a hollow cylinder extending upward from a lower end of said crankshaft; ~~and~~

wherein said suction hole has a diameter smaller than a diameter of said hollow ~~cylinder~~; cylinder;

wherein said hollow cylinder is inclined with respect to said rotation axis of said crankshaft,

wherein a vent hole is provided at an upper section of said hollow cylinder, and

wherein said vent hole is formed of a first part and a second part, said first part extends upwardly along said rotation axis of said crankshaft from an off-center position with respect to said rotation axis of said crankshaft at an upper section of said hollow cylinder, and said second part extends from an upper end of said first part to an upper opening that opens into said container and is located at an upper end of said main-shaft section.

14. **(Previously Presented)** The reciprocating compressor of claim 13, wherein

said main bearing and said sub bearing have axes that are substantially perpendicular to an axis along which said piston is arranged to reciprocate in said compression chamber.

15. **(Previously Presented)** The reciprocating compressor of claim 13, wherein said fluid suction path formed in said main section of said crankshaft constitutes a slant path slanted relative to an axis of said main section of said crankshaft, said slant path constituting a centrifugal pump.

Claim 16 **(Cancelled)**

17. **(Currently amended)** The reciprocating compressor of claim ~~16~~ 13, wherein said main section of said shaft has an upwardly facing surface facing upwardly in an axial direction of said crankshaft; and said upper opening of said second part of said vent hole opens through said upwardly facing surface of said main section of said shaft.

Claim 18 **(Cancelled)**

19. **(Currently amended)** The reciprocating compressor of claim ~~18~~ 13, wherein said throttle section constitutes a lower portion of a cap that is secured to a lower end of said crankshaft; and said suction hole is defined in a bottom end of said cap, and said bottom end of said cap constitutes said bottom wall of said throttle section.

20. **(Previously Presented)** The reciprocating compressor of claim 19, wherein said cap is press-fit in said lower end of said crankshaft.

Claim 21 **(Cancelled)**

22. **(Currently amended)** The reciprocating compressor of claim ~~21~~ 1, wherein said throttle section constitutes a lower portion of a cap that is secured to a lower end of said crankshaft; and

said suction hole is defined in a bottom end of said cap, and said bottom end of said cap constitutes said bottom wall of said throttle section.

23. **(Previously Presented)** The reciprocating compressor of claim 22, wherein said cap is press-fit in said lower end of said crankshaft.

24. **(Previously Presented)** The reciprocating compressor of claim 22, wherein said suction hole opens directly between said lubricant oil pooling portion and an interior of said throttle section.

25. **(Previously Presented)** The reciprocating compressor of claim 13, wherein said suction hole opens directly between said lubricant oil pooling portion and an interior of said throttle section.

26. **(Previously Presented)** The reciprocating compressor of claim 13, wherein said throttle section constitutes a lower portion of a cap that is secured to a lower end of said crankshaft; and
said cap comprises a cylinder having a hollow cylindrical interior connecting with said hollow cylinder extending upward from said lower end of said crankshaft, said hollow cylindrical interior of said cap being terminated, at a bottom end thereof, by said bottom wall having said suction hole formed therein.

27. **(Previously Presented)** The reciprocating compressor of claim 1, wherein

said throttle section constitutes a lower portion of a cap that is secured to a lower end of said crankshaft; and

said cap comprises a cylinder having a hollow cylindrical interior connecting with said hollow cylinder extending upward from said lower end of said crankshaft, said hollow cylindrical interior of said cap being terminated, at a bottom end thereof, by said bottom wall having said suction hole formed therein.

28. **(New)** The reciprocating compressor of claim 13, wherein
said second part of said vent hole is inclined with respect to said first part of said vent hole.

29. **(New)** The reciprocating compressor of claim 1, wherein
said second part of said vent hole is inclined with respect to said first part of said vent hole.